

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 1, 11, and 12 have been amended. Claims 1, 4, 6-12, 17, 20, and 21 are now pending in this application.

Applicant has amended Claim 1 to include an element of Claim 11. Accordingly, Applicant has amended Claim 12 to remove an antecedent basis that is no longer required. As a result, Applicant respectfully requests that the claim amendments be entered because the amendments do not require a new search by the Examiner, and the amendments place the claims in better condition for appeal.

I. Allowed Claim

Applicant thanks the Examiner for recognizing that Claim 21 is allowed. Applicant respectfully requests that the allowance of this claim be maintained.

II. Rejection of Claims 1, 6, 9, 10, 17, and 20 and Claims 11 and 12 Under 35 U.S.C. §§ 102(e) and 103(a), Respectively

A. Rejection of Claims 1, 6, 9, 10, 17 and 20 Under 35 U.S.C. § 102(e)

On pages 2-3 of the Office Action, Claims 1, 6, 9, 10, 17, and 20 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,356,323 to Petruchik (Petruchik). As stated previously, Applicant has amended Claim 1 to include an element of Claim 11. Independent Claim 1, as amended and with emphasis added through underlining, recites in part: “a backlight positioned under the second electrode.” On page 4 of the Final Office Action, the Examiner acknowledges that “Petruchik fails to disclose ... a backlight.” As a result, Petruchik fails to teach, suggest, or disclose all of the elements of Claim 1, as amended.

An anticipation rejection cannot properly be maintained where the reference used in the rejection does not disclose all of the recited claim elements. As a result, Applicant respectfully requests withdrawal of the rejection of Claim 1. Claims 6, 9, 10, 17, and 20

depend from Claim 1. Therefore, Applicant also respectfully requests withdrawal of the rejection of Claims 6, 9, 10, 17, and 20.

B. Rejection of Claims 11 and 12 Under 35 U.S.C. § 103(a)

On pages 4-5 of the Office Action, Claims 11 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Petruchik in view of U.S. Patent No. 6,462,805 to Wu et al. (Wu). Applicant respectfully disagrees. MPEP § 2143 states:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

At a minimum, the Examiner has failed to demonstrate that there is a suggestion or a motivation to combine the teachings of Petruchik with the teachings of Wu.

As previously noted, Claim 1 has been amended to include an element of Claim 11. In rejecting Claim 11, on pages 4-5 of the Final Office Action, the Examiner proposes combining Petruchik with Wu, which is asserted to supply the “backlight” acknowledged to be missing from Petruchik. On pages 4-5 of the Final Office Action, the Examiner states (with emphasis added through underlining):

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a first polarizer positioned above a first electrode, a second polarizer crossed with the first polarizer and positioned under the second electrode and a backlight positioned under the second polarizer as proposed. One would have been motivated to form polarizers and a backlight as proposed to realize a transmissive display Transmissive displays have advantages conventionally known in the art such as ability for use in a dark environment, such as a closed area or at night.

Applicant respectfully disagrees with the above reasoning. The above rejection is respectfully traversed because combining Petruchik and Wu, as proposed by the Examiner,

would “render the prior art unsatisfactory for its intended purpose.” MPEP § 2143.01. Additionally, there is no motivation to change the reflective display as taught by Petruchik to a transmissive display. Reflective displays also have advantages.

Petruchik states:

A first light modulating layer is disposed over the first conductor including a liquid crystal material having a chiral dopant selected so that regions can be placed in a state where colored light is reflected in a first portion of the spectrum. A second light modulating layer is disposed over the second conductor including a liquid crystal material having a chiral dopant selected so that regions can be placed in a state where colored light is reflected in a second portion of the spectrum. A third conductor is disposed over the first light modulating layer and defining a third pattern. A third light modulating layer is disposed over the third conductor including a liquid crystal material having a chiral dopant selected so that regions can be placed in a state where colored light is reflected in a third portion of the spectrum.

(Abstract, with emphasis added through underlining). Thus, Petruchik describes a reflective display, not a transmissive display. Adding a backlight to Petruchik renders the reflective display unsatisfactory for its intended purpose of selectively reflecting components of light to create a color image. (See col. 3, lines 23-27; col. 3, line 65-col. 4, line 2; and col. 4, lines 13-17).

Wu describes “various reverse-mode direct-view liquid crystal displays employing a liquid crystal having a characteristic wavelength in the non-visible spectrum, including reflective, transmissive and reflective-transmissive mode displays.” (Abstract). Relative to the reflective display, Wu states that “[t]urning now to FIG. 2, illustrated is a cross-sectional view of a reflective LCD 200, and its operation when its liquid crystal 220 is in planar and focal-conic.” (Col. 5, lines 44-46). Wu includes no backlight in the reflective LCD 200. (See Fig. 2).

Relative to the reflective-transmissive mode display, Wu states “[t]urning now to FIG. 3-A, illustrated is a cross-sectional view of a transreflective LCD 300, and its operation in a

transmissive mode when its liquid crystal 320 is in planar and focal-conic states.” (Col. 6, lines 57-60). Wu additionally states that “[i]n the transmissive mode of operation of LCD 300, the light source 350 is energized.” (Col. 7, lines 55-56). Wu further states:

Turning now to FIG. 3-B, illustrated is a cross-sectional view of the transfective LCD 300, and its operation in a reflective mode when its liquid crystal is in planar and focal-conic states, In the transmissive mode of operation of LCD 300, the light source 350 is de-energized.

(Col. 8, lines 15-20, with emphasis added through underlining and bolding). Thus, when the transfective LCD 300 is operated in the reflective mode, the light source is not used. Thus, no backlight is used in a reflective display as taught by Wu.

Petruchik discloses a reflective display in which fractions of red, green, and blue light are selectively reflected. (*See* Col. 3, lines 23-27). Petruchik states:

Application of electrical fields of various intensity and duration can change the state of the chiral doped liquid crystal material from a reflective state to a transmissive state. These materials have the advantage of maintaining a given state indefinitely after the electrical field is removed. In this way white light enters the display and is selectively reflected by various layers of chiral doped liquid crystals adjusted for different wave lengths of light and controlled by a matrixed electrical drive so as to create a color image.

(Col. 3, lines 31-40, with emphasis added through underlining). As such, Petruchik describes creating a color image by adjusting and controlling the layers of liquid crystal material to reflect selected light components. Petruchik further discloses a “black light absorbing surface 10 is placed behind the last display unit 12.” (Col. 2, lines 64-65). Presumably, the black light absorbing surface 10 is to absorb the components of the white light that were not selected to be reflected. If such components were reflected, image quality likely is reduced.

The Examiner proposes modifying the display of Petruchik to include the backlight of Wu. Applicant respectfully submits that such a modification would render the reflective display, as taught by Petruchik, unsatisfactory for selectively reflecting components of light. If the backlight were energized the resulting light would change the reflection previously

controlled by the chiral doped liquid crystals as described by Petruchik. If the backlight is not energized, then there is no motivation to add the backlight to the reflective display of Petruchik. It is a useless component adding unnecessary cost and weight to the reflective display. Additionally, positioning the backlight between the layer 36 and the light absorbing surface 10 would obstruct at least portions of the light absorbing surface thus, hindering the ability of the black light absorbing surface 10 to absorb the white light not selected to be reflected.

As the motivation to combine the references, on pages 4-5 of the Office Action, the Examiner states:

One would have been motivated to form polarizers and a backlight as proposed to realize a transmissive display Transmissive displays have advantages conventionally known in the art such as ability for use in a dark environment, such as a closed area or at night.

Applicant respectfully submits, however, that both reflective and transmissive displays have advantages over the other. Wu describes both types of displays and a display which supports both modes. If a reflective display did not provide its own advantages, there would be no reason to describe both types of displays. Therefore, stating that the transmissive display has advantages, fails to provide a motivation for modifying a reflective display to realize a transmissive display when the reflective display also has advantages. Petruchik specifically describes a reflective display designed to take advantage of the benefits of a reflective type display. Additionally, it is not clear that merely adding the backlight and polarizers to Petruchik results in a satisfactory transmissive display.

As a result, there is no motivation to combine Petruchik with Wu. Therefore, Applicant respectfully requests withdrawal of the rejection of Claim 1 under 35 U.S.C. § 103(a). Claims 6, 9, 10-12, 17, and 20 depend from Claim 1. Therefore, Applicant also respectfully requests withdrawal of the rejection of Claims 6, 9, 10-12, 17, and 20.

III. Rejection of Claims 4, 7, and 8 Under 35 U.S.C. § 103(a)

On pages 3-4 of the Office Action, Claims 4, 7, and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Petruchik in view of U.S. Patent No. 5,452,113 to Ikeno (Ikeno). Applicant respectfully disagrees because Petruchik and Ikeno, alone and in combination, fail to teach, suggest, or disclose all of the elements of at least Claim 1, as amended. Claims 4, 7, and 8 depend from Claim 1.

As discussed in Sections II, Petruchik fails to teach at least “a backlight positioned under the second electrode” as recited in Claim 1. Ikeno states:

An object of the present invention is to provide a reflective color display element high in display quality which allows color display and high-contrast monochrome display in the same pixel

(Col. 3, lines 3-6, with emphasis added through underlining). Ikeno further states that a “reflecting-type liquid crystal display ... eliminates the use of a backlight.” (Col. 1, lines 10-11). Therefore, Ikeno also fails to teach at least “a backlight positioned under the second electrode” as recited in Claim 1.

A rejection under 35 U.S.C. § 103(a) cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 4, 7, and 8 which depend from Claim 1.

Applicant believes that the present application is in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

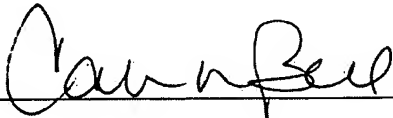
The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a

check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By _____

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